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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/697,304	10/31/2003	Chen Chih-Wei	0698-0165P	9869

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EXAMINER	
CHAI LONGBIT	
ART UNIT	**PAPER NUMBER**
2131	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	02/21/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 02/21/2007.

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mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/697,304	CHIH-WEI, CHEN	
	Examiner	Art Unit	
	Longbit Chai	2131	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Applicant's claim for benefit of foreign priority under 35 U.S.C. 119 (a) – (d) is acknowledged.

The application is filed on 10/31/2003 but has a foreign priority application filed on 3/27/2003.

Claim Objections

2. Claim 10 is objected to because of the following informalities: "is storage management software" should be "is a storage management software". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1 and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention

Claim 1 recites the limitations (a) "the electronic information appliance (Page 11 Line 5)" should be "an electronic information appliance" because there is insufficient antecedent basis for this limitation in the claim; and (b) claim 1 also recites "handing over the authorization to the embedded software" (Page 11 Line 13)". There is insufficient antecedent basis for this limitation in the claim because it is not clear whether the authorization is referred to the parameter access authorization or not.

Claim 8 recites the limitations " the sequence of the parameters (Page 12 Line 7)" should be "a sequence of the parameters" because there is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1 – 3, 5, 6 and 8 – 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Falkenberg (U.S. Patent 2003/0056115), in view of Torrubia-Saez (U.S. Patent 6,683,546).

As per claim 1, Falkenberg teaches a method for protecting an embedded software (Falkenberg: Para [0001], Para [0015] Line 1 – 8: CPU executable instructions stored in ROM is qualified as an embedded software), whereby a verification mechanism of the embedded software is modified as to require the embedded software to be operated in coordination with hardware characteristics of an authorized electronic information appliance (Falkenberg: Para [0004]: permitting external access only through a dedication function controlled by the module itself), the electronic information appliance having a storage device and firmware to enable execution of the embedded software only in the authorized electronic information appliance (Falkenberg: Para [0018]: only through a dedicated functions and dedicated data section), the method comprising steps of:

(1) having a first program of the embedded software store parameters to be transmitted in a first address of the storage device (Falkenberg: Figure 1 / Element 130 & 120 and Para [0018]: the data parameter access (e.g., store / write) of (X, Y, Z) of the external function (Fig. 1 / Element 130) is stored / written onto the (X, Y, Z) of firmware private data section (Fig. 1 / Element 120) – where (X, Y, Z) of the external function is considered as a first address), and having the embedded software pass a parameter access authorization through a function of the firmware to the firmware of the electronic information appliance (Falkenberg: Para [0018] and Figure 1 / Element 110: a parameter access (RD/WR) from an external function can be authorized only through a dedication function in code section and a private data section);

(2) having the firmware rearrange and store the parameters in a second address of the storage device, and handing over the authorization to the embedded software (Falkenberg: Figure 1 / Element 130 & 120 and Para [0018]: the data parameter access (e.g., store / write) of (X, Y, Z) of the external function (Fig. 1 / Element 130) is stored / written onto the (X, Y, Z) of firmware private data section (Fig. 1 / Element 120) – where (X, Y, Z) of the firmware private data section is considered as a second address and a parameter access (RD/WR) from an external function (embedded software) can be authorized only through a dedication function in code section and a private data section).

However, Falkenberg does not disclose expressly (3) having the embedded software call and pass the authorization to a second program of the embedded software, and having the second program extract the parameters from a default parameter address, and determining whether the parameters are correct, wherein, if the parameters are correct, the embedded software is properly executed, otherwise the embedded software is disabled.

Torrubia-Saez teaches (3) having the embedded software call and pass the authorization to a second program of the embedded software (Torrubia-Saez : Column 20 Line 51 – 60 and Figure 18: the "hooking" routine (i.e. the execution notifier) of access control routine is considered as a second program of the embedded software), and having the second program extract the parameters from a default parameter address (Torrubia-Saez : Column 20 Line 25 – 29: a made-up data section is used by the "hooking" routine), and determining whether the parameters are correct (Torrubia-

Saez : Column 16 Line 24 – 27 and Column 21 Line 23 – 25: signature can be considered as a part of the parameters used for authorization if necessary), wherein, if the parameters are correct, the embedded software is properly executed, otherwise the embedded software is disabled (Torrubia-Saez : Column 21 Line 5 – 7: if authorized, the hooking routine (i.e. the execution notifier) calls the appropriate routine in the operation system).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Torrubia-Saez within the system of Falkenberg because (a) Falkenberg teaches providing a mechanism for protecting data in firmware modules of embedded system (Falkenberg: Para [0001]) and (b) Torrubia-Saez teaches providing a "hooking" routine (i.e. the execution notifier) associated with a program object (i.e. external function) for access control purpose prior to interfacing with operation system in order to avoid directly accessing the private data section in a computer system (Torrubia-Saez : Column 20 Line 53 – 60, Column 2 Line 22 – 24 and Column 21 Line 5 – 7).

As per claim 2, Falkenberg as modified teaches the electronic information appliance is a storage server (Torrubia-Saez : Column 17 Line 56 – 62 and Column 19 Line 29 – 30).

As per claim 3, Falkenberg as modified teaches the storage device is a memory (Torrubia-Saez : Column 19 Line 29 – 30 and Column 4 Line 7).

As per claim 5, Falkenberg as modified teaches the first program is a main program of the embedded software (Falkenberg : Para [0016] Line 8 – 9 and Figure 1 / Element 130).

As per claim 6, Falkenberg as modified teaches the address of the storage device in step (1) is a buffer in the memory (Torrubia-Saezg: Column 17 Line 35 – 36: data loaded into a memory is considered as a memory buffer).

As per claim 8, Falkenberg as modified teaches encoding and rearranging the sequence of the parameters before having the firmware rearrange and store the parameters according to a different sequence in a second address of the storage device in step (2) (Torrubia-Saezg: Column 20 Line 45 – 50 & Figure 18: rearranging the sequence of the parameters by the execution notifier to prevent the data intrusion attacks).

As per claim 9, Falkenberg as modified teaches the second program is an auxiliary program of the embedded software (Torrubia-Saezg: Column 20 Line 53 – 60: the execution notifier (i.e. hooking routine) associated with the embedded software is considered as an auxiliary program).

As per claim 10, Falkenberg as modified teaches the embedded software is a storage management software (Torrubia-Saezg: Torrubia-Saez : Column 17 Line 56 – 62 and Column 19 Line 29 – 30).

5. Claims 4 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Falkenberg (U.S. Patent 2003/0056115), in view of Torrubia-Saez (U.S. Patent 6,683,546), and in view of Alexander et al. (U.S. Patent 6,188,602).

As per claim 4, Falkenberg as modified does not disclose expressly the firmware is a basic input/output system (BIOS).

Alexander teaches the firmware is a basic input/output system (BIOS) (Alexander ; Column 3 Line 37 – 45: the firmware BIOS provides security features for register-based read and write protection for code / data storage blocks).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Alexander within the system of Falkenberg as modified because (a) Falkenberg teaches providing a mechanism for protecting data in firmware modules of embedded system (Falkenberg: Para [0001]) and (b) Alexander teaches providing the firmware BIOS with security features for register-based read and write protection for code / data storage blocks that lock / unlock memory access only after successful data validations (Alexander : Column 3 Line 37 – 45 and Column 5 Line 58 – 61).

As per claim 7, Falkenberg as modified does not disclose expressly the function provided by the firmware is an appliance management interrupt (SMI) function.

Alexander teaches the function provided by the firmware is an appliance management interrupt (SMI) function (Alexander ; Column 3 Line 37 – 45: the firmware BIOS provides security features for register-based read and write protection for code / data storage blocks and the SMI locks / unlocks memory access only after successful data validations).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Alexander within the system of Falkenberg as modified because (a) Falkenberg teaches providing a mechanism for protecting data in firmware modules of embedded system (Falkenberg: Para [0001]) and (b) Alexander teaches providing the firmware BIOS with security features for register-based read and write protection for code / data storage blocks that lock / unlock memory access only after successful data validations (Alexander : Column 3 Line 37 – 45 and Column 5 Line 58 – 61).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Longbit Chai whose telephone number is 571-272-3788. The examiner can normally be reached on Monday-Friday 8:00am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz R. Sheikh can be reached on 571-272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Longbit Chai

Longbit Chai, Ph.D.
Patent Examiner
Art Unit 2131
2/8/2007